

**REMARKS**

Entry of the above amendment is respectfully requested.

**Summary of Amendments**

Upon entry of the present amendment claim 11 is amended and claims 31 and 32 are added, whereby claims 11-32 will be pending, with claim 11 being the only independent claim. Support for amended claim 11 can be found throughout the present specification. See, e.g., the Examples. See also claims 17 and 18.

Applicants emphasize that the amendment to claim 11 is without prejudice or disclaimer, and Applicants expressly reserve the right to prosecute claim 11 in its original, unamended form in one or more divisional and/or continuation applications.

**Summary of Office Action**

Claims 11, 17-24 and 28-30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over several claims of co-pending Application No. 11/721,203.

Claims 11-27 remain rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by SCHMIDT et al., U.S. Patent No. 6,287,639 (hereafter "SCHMIDT I") as evidenced by MSDS data sheet of Sigma-Aldrich.

Claims 11, 17 and 18 remain rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by SCHMIDT et al., U.S. Patent No. 6,378,599 (hereafter "SCHMIDT II") as evidenced by MSDS data sheet of Sigma-Aldrich.

Claims 11-15 and 17-27 are newly rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Philipp et al., U.S. Patent No. 4,746,366 (hereafter "PHILIPP").

Claims 11-25 and 27 are newly rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Schmidt et al., U.S. Patent No. 5,766,680 (hereafter "SCHMIDT III").

Claims 28-30 remain rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Espin et al., U.S. Patent No. 6,513,592 (hereafter "ESPIN") in view of SCHMIDT I as evidenced by MSDS data sheet of Sigma-Aldrich.

#### **Response to Office Action**

Reconsideration and withdrawal of the rejections made in the present Office Action are again respectfully requested, in view of the foregoing amendments and the following remarks.

#### ***Response to Provisional Rejection***

Claims 11, 17-24 and 28-30 are (newly) provisionally rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over several claims of co-pending Application No. 11/721,203.

Applicants respectfully request that this provisional rejection be held in abeyance until allowable subject matter has been indicated. Applicants will then decide whether appropriate action to overcome this rejection needs to be taken.

#### ***Response to Rejections under 35 U.S.C. § 102(b) over SCHMIDT I and SCHMIDT II***

Claims 11-27 remain rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by SCHMIDT I and claims 11, 17 and 18 additionally remain rejected under 35 U.S.C. § 102(b) as

allegedly being anticipated by SCHMIDT II. The rejections essentially allege that SCHMIDT I and SCHMIDT II disclose all of the elements which are recited in the rejected claims.

Applicants respectfully traverse these rejection for all of the reasons which are set forth in the Appeal Brief filed December 8, 2009, the Reply Brief filed March 23, 2010 and the Submission under 37 C.F.R. § 1.114 filed July 19, 2010. The corresponding remarks are expressly incorporated herein.

In particular, it is pointed out again that even if the Examiner were correct in assuming that the colloidal inorganic particles which are present in the binders of SCHMIDT I and SCHMIDT II do not make any contribution to the binding or consolidating action of these binders (which is clearly incorrect, as evidenced by the documents submitted with the Submission under 37 C.F.R. § 1.114 filed July 19, 2010), it must be taken into account that the binders of SCHMIDT I and SCHMIDT II do not contain the colloidal particles and the hydrolysates/condensates of silanes of general formula (I) as separate entities. Rather, the colloidal particles and the hydrolysates/condensates are inseparably linked to each other by chemical bonds or, using the terminology used in SCHMIDT I and SCHMIDT II, the colloidal particles are surface-modified by the hydrolysates/condensates.

As one of ordinary skill in the art will understand this surface-modification involves a chemical reaction between a surface group of a colloidal particle and a group of a silane of general formula (I) which is capable of reacting with the surface group of the colloidal particle to form a chemical bond between the (surface of) the colloidal particle and the silane or hydrolysate/condensate derived therefrom, respectively.

In other words, in contrast to a mere suspension of colloidal particles in a matrix of hydrolysates/condensates of silanes of general formula (I), the colloidal particles in the binders

of SCHMIDT I and SCHMIDT II cannot be separated from the hydrolysates/condensates.

Accordingly, even if one of ordinary skill in the art were to come to the conclusion that the colloidal particles in the binders of SCHMIDT I and SCHMIDT II do not serve any useful purpose or may even be disadvantageous, it would not be possible to remove these particles from the hydrolysates/condensates of silanes of general formula (I) of the binders of SCHMIDT I and SCHMIDT II because these particles are an integral component of these binders.

Applicants note that in response to the above arguments the Examiner alleges in the paragraph bridging pages 2 and 3 of the instant Office Action that both SCHMIDT I and SCHMIDT II “expressly disclose that ‘the silanes of the general formula (I) ...may be employed wholly or partially in the form of precondensates ... either alone or in a mixture with other hydrolysable compounds’ and ‘Such oligomers, preferably soluble in the reaction medium...’”. Emphasis in original.

While not expressly stated, Applicants assume that the Examiner takes the position that the precondensates which may allegedly be used instead of silanes of general formula (I) to surface-modify the colloidal inorganic particles of the compositions of SCHMIDT I and SCHMIDT II may be soluble in the in the reaction medium and thus, are not linked to the colloidal inorganic particles.

Applicants submit that this position is clearly without merit. First, it apparently is impossible for any substance to modify the surface of any particle without being linked to the particle. Further, the precondensates referred to in SCHMIDT I and SCHMIDT II are starting materials (instead of or in addition to the silanes of formula (I)) for the sol-gel process which produces the condensates which eventually surface-modify the colloidal particles. This becomes

clear from, e.g., from the passage from col. 3, line 15 to col. 4, line 5 of SCHMIDT I (also relied upon in part by the Examiner) which states, *inter alia* (emphasis added):

The novel composite materials may be prepared, for example, from pure methyltriethoxysilane (MTEOS) or from mixtures of MTEOS and tetraethoxysilane (TEOS), as component (b).

The use of silanes with one or more groups R which are substituted is advisable in particular where special properties are to be given to the composite material. For example, the introduction of fluorine atoms (e.g. in the form of substituted aliphatic (in particular alkyl) radicals) can give a composite material which has water-, dirt-, dust- and oil-repellent properties. Concrete examples of silanes of the general formula (I) are compounds of the following formulae:

[...]

The silanes of the general formula (I) used according to the invention may be employed wholly or partially in the form of precondensates, i.e. compounds produced by partial hydrolysis of the silanes of the formula (I), either alone or in a mixture with other hydrolysable compounds. Such oligomers, preferably soluble in the reaction medium, may be straight-chain or cyclic low-molecular-weight partial condensates (polyorgano-siloxanes) having a degree of condensation of e.g. from about 2 to 100, in particular from about 2 to 6.

The amount of water employed for hydrolysis and condensation of the silanes of the formula (I) is preferably from 0.1 to 0.9 mol, and particularly preferably from 0.25 to 0.75 mol, of water per mole of the hydrolysable groups which are present. Particularly good results are often achieved with from 0.35 to 0.45 mol of water per mole of the hydrolysable groups which are present.

The above passage makes it entirely clear that the (soluble) precondensates mentioned in SCHMIDT I and SCHMIDT II, if employed at all, are no longer present in the final binder materials disclosed therein but are converted (optionally together with silanes of formula (I)) by the sol-gel process into the substances which eventually form the surface-modification of the colloidal inorganic particles.

Further, regarding the allegations set forth in the first full paragraph of page 3 of the instant Office Action it is submitted that while it is correct that the recitation of "consolidation agent for molded article and geological formations" occurs in the preamble of claim 11, it is

pointed out that the “wherein” clause of claim 11 refers to “the agent”, thereby making the “consolidation agent for molded article and geological formations” also a part of the “wherein” clause, i.e., not just a part of the preamble of claim 11.

It further is not seen that SCHMIDT I or SCHMIDT II disclose the combinations of silanes recited in instant claims 17 and 18. In this regard, it is pointed out again that one of the requirements for anticipation is that an anticipatory document discloses each and every element recited in a particular claim as arranged in the claim. See, e.g., *NetMoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359 (Fed. Cir. 2008), relevant passages whereof are reproduced in the Reply Brief filed March 23, 2010. Applicants note that the Examiner has not commented on this issue at all.

Regarding instant claim 24, Applicants further point out that any liquid medium that contains the (colloidal inorganic particles containing) nanocomposite of SCHMIDT I would necessarily contain particles and would thus, not qualify as a solution (SCHMIDT I does not appear to mention emulsions at all).

Applicants submit that for at least all of the foregoing reasons and the additional reasons set forth in the Appeal Brief, the Reply Brief and the Submission under 37 C.F.R. § 1.114 the rejections under 35 U.S.C. § 102(b) over SCHMIDT I and SCHMIDT II are without merit and should be withdrawn, which action is again respectfully requested.

***Response to Rejections under 35 U.S.C. § 102(b) over PHILLIPP***

Claims 11-15 and 17-27 are newly rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by PHILLIPP. The rejection essentially alleges that all of the elements recited in the rejected claims are disclosed by PHILLIPP.

Applicants respectfully traverse this rejection as well. In particular, it is pointed out that according to independent claim 11 submitted herewith at least one of the one or more organosilanes of formula (I) is an arylsilane. It is not seen that PHILIPP teaches or suggests the use of an arylsilane and for this reason alone, is unable to anticipate any of the instant claims, even if one were to assume, *arguendo*, that the compositions of PHILIPP are particle-free.

It is submitted that for at least all of the foregoing reasons withdrawal of the instant rejection under 35 U.S.C. § 102(b) over PHILIPP is warranted.

***Response to Rejections under 35 U.S.C. § 102(b) over SCHMIDT III***

Claims 11-25 and 27 are newly rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by SCHMIDT III. The rejection essentially alleges that all of the elements recited in the rejected claims are disclosed by SCHMIDT III.

This rejection is respectfully traversed as well. In particular, independent claim 11 recites that the consolidation agent is particle-free. In this regard the Examiner merely alleges that SCHMIDT III “discloses that the starting components are soluble in the liquid reaction medium (col. 3, line 4-8), which meets the limitation of particle-free.” Page 10, second paragraph of the instant Office Action.

In this regard, it is pointed out that the question here is not whether the “starting components” of the composition for making the structured inorganic layers of SCHMIDT III are soluble in the liquid reaction medium. Rather, the question is whether the final product, i.e., the coating composition of SCHMIDT III with which a substrate is contacted (coated) to subsequently form a structured layer on the substrate, is particle-free. In this regard, it is noted

that in the passage from col. 2, last line to col. 3, line 13 SCHMIDT III (relied upon in part by the Examiner) states (emphasis added):

The hydrolysis and polycondensation are conducted either in the absence of a solvent or, preferably, in an aqueous or aqueous/organic reaction medium, optionally in the presence of an acidic or basic condensation catalyst, such as HCl, HNO<sub>3</sub> or NH<sub>3</sub>. If a liquid reaction medium is employed the starting components are soluble in said reaction medium. Suitable organic solvents are particularly solvents which are miscible with water, e.g., mono- or polyhydric aliphatic alcohols, ethers, esters, ketones, amides, sulfoxides and sulfones.

Preferably, the hydrolysis and polycondensation are effected under the conditions of the sol-gel process, the reaction mixture being employed in the viscous sol state for the coating of the substrate.

The above passage does not allow the conclusion that the final coating composition (after hydrolysis and polycondensation of the starting components) is necessarily particle-free. In this regard, the Examiner is reminded that matter is "inherent" if the extrinsic evidence makes it clear that the matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. *Titanium Metals Corp. v. Banner*, 778 F.2d 775 (Fed. Cir. 1985); *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349-50 (Fed. Cir. 2002); *In re Crish*, 393 F.3d 1253, 1258-59 (Fed. Cir. 2004). Inherency, however, cannot arise from probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. To the contrary, a certain thing must result from a given set of circumstances to be inherent. *In re Robertson*, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

Further, with respect to claims 17 and 18, it is not seen that SCHMIDT III discloses the combinations of silanes recited in instant claims 17 and 18. In this regard, it is pointed out again that one of the requirements for anticipation is that an anticipatory document discloses each and every element recited in a particular claim as arranged in the claim. See, e.g., *NetMoneyIN, Inc.*



v. *VeriSign, Inc.*, 545 F.3d 1359 (Fed. Cir. 2008), relevant passages whereof are reproduced in the Reply Brief filed March 23, 2010.

It further is not seen that SCHMIDT III discloses a process which comprises mixing and/or coating a material that is porous and/or particulate with a particle-free coating composition (which is derived from at least one arylsilane). See, e.g., instant claim 25. In this regard it is noted that the Examples of SCHMIDT III describe the coating of plate glass (neither porous nor particulate) with a particle-containing coating composition (containing silica particles, Bayer Kieselsol 300) that is derived exclusively from methyltriethoxysilane and tetraethoxysilane (without arylsilane).

Applicants submit that for at least all of the foregoing reasons, SCHMIDT III fails to anticipate the subject matter of any of the claims submitted herewith, wherefore withdrawal of the instant rejection over this document is warranted as well.

***Response to Rejection of Claims under 35 U.S.C. § 103(a)***

Claims 28-30 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over ESPIN in view of SCHMIDT I. The rejection again alleges that ESPIN teaches a process for consolidating sand formations comprising injecting a consolidation system into the formation and curing thereof and further teaches the consolidation system is a fluid suspension of nanoparticles as disclosed in PCT/EP97/06370, of which SCHMIDT I is the English equivalent. The rejection concedes that ESPIN does not teach the claimed consolidation agent but alleges that “[i]t would have been obvious to a person of ordinary skill in the art to inject the agent of [SCHMIDT I] into the formation and curing thereof for the benefit of consolidating sand formations, because [ESPIN] expressly teaches the use of the composition of ...[SCHMIDT I]”.  
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This rejection is respectfully traversed for all of the reasons which are set forth in the Appeal Brief filed December 8, 2009, the Reply Brief filed March 23, 2010 and the Submission under 37 C.F.R. § 1.114 filed July 19, 2010. The corresponding remarks are expressly incorporated herein.

In particular, the rejection of claims 28-30 under 35 U.S.C. § 103(a) as allegedly being unpatentable over ESPIN is based on the incorrect (see above) assumption that SCHMIDT I anticipates the subject matter of claims 11-27 and thus, is necessarily without merit for this reason alone.

Applicants submit that the Examiner has failed to establish a *prima facie* case of obviousness of the subject matter of instant claims 28-30 over ESPIN in view of SCHMIDT I, wherefore withdrawal of the instant rejection of these claims under 35 U.S.C. § 103(a) is warranted and respectfully requested as well.

**CONCLUSION**

In view of the foregoing, it is believed that all of the claims in this application are in condition for allowance, which action is again respectfully requested. If any issues yet remain which can be resolved by a telephone conference, the Examiner is respectfully invited to telephone the undersigned at the telephone number below.

Respectfully submitted,  
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/Heribert F. Muensterer/

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